WHAT IS CLAIMED IS:

1. A method of making an alloy powder for an R-Fe-B-type rare earth magnet, the method comprising the steps of:

a) preparing a material alloy that is to be used to form the R-Fe-B-type rare earth magnet and that includes a chilled structure that constitutes about 2 volume percent to about 20 volume percent of the material alloy;

b) coarsely pulverizing the material alloy for the R-Fe-B-type rare earth magnet by utilizing a hydrogen occlusion phenomenon to obtain a coarsely pulverized powder;

c) finely pulverizing the coarsely pulverized powder and removing at least some of fine powder particles having particle sizes of about 1.0 μ m or less from the finely pulverized powder, thereby reducing the volume fraction of the fine powder particles having the particle sizes of about 1.0 μ m or less; and

d) covering the surface of remaining ones of the powder particles with a lubricant after the step c) has been performed.

2. The method of claim 1, wherein the alloy powder has a volume particle size distribution with a single peak and a mean particle size (FSSS particle size) of about 4 μ m or less.

3. The method of claim 2, wherein in the volume particle size distribution, a total volume of particles that have particle sizes falling within a first particle size range is greater than a total volume of particles that have particle sizes falling within a second particle size range, where the first particle size range is defined by a particle size A representing the peak of the volume particle size distribution

and a predetermined particle size B that is smaller than the particle size A, the second particle size range is defined by the particle size A and another predetermined particle size C that is larger than the particle size A, and the particle size C minus the particle size A is substantially equal to the particle size A minus the particle size B.

4. The method of claim 2, wherein a particle size D representing a center of a full width at half maximum of the volume particle size distribution is smaller than a particle size A representing the peak of the volume particle size distribution.

5. The method of claim 1, wherein the step of finely pulverizing the coarsely pulverized powder is performed using a high-speed flow of an inert gas.

6. The method of claim 5, wherein the coarsely pulverized powder is finely pulverized using a jet mill.

7. The method of claim 5, wherein the coarsely pulverized powder is finely pulverized using a pulverizer that is combined with a classifier for classifying the powder particles output from the pulverizer.

8. The method of claim 1, wherein the step of preparing the material alloy for the rare earth magnet includes the step of cooling a melt of the material alloy at a cooling rate of about 10^2 °C/sec to about 2×10^4 °C/sec.

9. The method of claim 8, wherein the step of cooling the melt of the material alloy is performed by a strip casting process.

10. The method of claim 1, wherein the step of covering the surface of remaining ones of the powder particles with a lubricant includes adding a liquid lubricant to the material alloy powder in an amount equal to about 0.15 wt% to about 5.0 wt%, and mixing the liquid lubricant with the powder.

11. A method for producing an R-Fe-B-type rare earth magnet, comprising the steps of:

preparing an alloy powder for the R-Fe-B-type rare earth magnet according to the method of claim 1;

compacting the alloy powder for the R-Fe-B-type rare earth magnet at a pressure of about 100 MPa or less by a uniaxial pressing process, thereby making a powder compact; and

sintering the powder compact to produce a sintered magnet.

12. An alloy powder for an R-Fe-B-type rare earth magnet, the powder comprising a pulverized material alloy that is to be used to form the R-Fe-B-type rare earth magnet and that includes a chilled structure that constitutes about 2 volume percent to about 20 volume percent of the material alloy;

wherein the powder has a volume particle size distribution with a single peak and a mean particle size (FSSS particle size) of about 4 μ m or less; and

wherein in the volume particle size distribution, a total volume of particles that have particle sizes falling within a first particle size range is greater than a

total volume of particles that have particle sizes falling within a second particle size range, where the first particle size range is defined by a particle size A representing the peak of the volume particle size distribution and a predetermined particle size B that is smaller than the particle size A, the second particle size range is defined by the particle size A and another predetermined particle size C that is larger than the particle size A, and the particle size C minus the particle size A is substantially equal to the particle size A minus the particle size B.

13. An alloy powder for an R-Fe-B-type rare earth magnet, the powder comprising a pulverized material alloy that is to be used to form the R-Fe-B-type rare earth magnet and that includes a chilled structure that constitutes about 2 volume percent to about 20 volume percent of the material alloy;

wherein the powder has a volume particle size distribution with a single peak and a mean particle size (FSSS particle size) of about 4 μ m or less; and

wherein a particle size D representing a center of a full width at half maximum of the volume particle size distribution is smaller than a particle size A representing the peak of the volume particle size distribution.

14. An alloy powder for an R-Fe-B-type rare earth magnet, the powder including a chilled structure that constitutes about 2 volume percent to about 20 volume percent of the powder; wherein

the powder has a mean particle size of about 2 μ m to about 10 μ m;

the fraction of fine powder particles with particle sizes of about 1.0 μ m or less is about 10% or less of the volume of all powder particles; and

the surface of the powder particles is covered with a lubricant.

15. The alloy powder according to claim 12, wherein the pulverized material alloy is a pulverized rapidly solidified alloy that was produced from a melt of a material alloy that was cooled at a cooling rate of about 10^2 °C/sec to about 2×10^4 °C/sec.

16. The alloy powder according to claim 13, wherein the pulverized material alloy is a pulverized rapidly solidified alloy that was produced from a melt of a material alloy that was cooled at a cooling rate of about 10^2 °C/sec to about 2×10^4 °C/sec.

17. The alloy powder according to claim 14, wherein the pulverized material alloy is a pulverized rapidly solidified alloy that was produced from a melt of a material alloy that was cooled at a cooling rate of about 10^2 °C/sec to about 2×10^4 °C/sec.

18. An R-Fe-B-type rare earth magnet made from the alloy powder for the R-Fe-B-type rare earth magnet according to claim 12.

19. An R-Fe-B-type rare earth magnet made from the alloy powder for the R-Fe-B-type rare earth magnet according to claim 13.

20. An R-Fe-B-type rare earth magnet made from the alloy powder for the R-Fe-B-type rare earth magnet according to claim 14.